THE GENDER WAGE GAP

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Women's participation in the labor force and their work pattern, their earnings, the female-male earnings ratio, and the occupations and industries in which they work are all important aspects of women's economic status. Women as a group still tend to work fewer hours per week, fewer weeks per year, and fewer years over their life time than men; they still earn less than men at similar levels of educational attainment, are still concentrated in the lower-paying occupations and industry categories, and earn less than men in every occupational field and industry category. In 2004, the median annual earnings of full-time, year-round workers in the United States were $40,798 for men and $31,223 for women. This means that, on average, women in the U.S earned only 76.5 percent of what men earned in 2004, or that the female-male earnings ratio was 76.5 percent[1]. However, the median weekly earnings were $573 for women and $713 for men, and the female-male earnings ratio on this basis was 80.4. But the weekly earnings are for wage and salary workers only, and do not include self-employed workers. In Tennessee, the situation is slightly worse. The median wages of women who worked full-time, year-round in 2002 were $26, 900 while men's ft/yr median earnings were $35,800. The female-male earnings ratio was 75.1 percent, giving the state a rank of 36 out of all states on this indicator of status. A comparison of the female-male earnings ratios across counties in Tennessee shows that it varies from 64.5 percent in Grundy to 82.1 percent in Davidson[2].

The female-male earnings ratio has increased and the gender pay gap reduced significantly over the past thirty years as women have increasingly entered traditionally male occupations. The ratio remained more or less constant at 60 percent from the 1950s to late 1970s**.** It increased from 61 percent to 78.5 percent between 1978 and 1999, plateaued for a few years, and increased to 80.4 percent in 2004. As women have made rapid gains in formal education and have increasingly entered the traditionally male-dominated, high-paying professional occupations (such as architects, chemists, computer

[1] Institute for Women's Policy Research (IWPR) Fact Sheet, No. C350, p.1.
[2] Tennessee Economic Council on Women, *The Status of Women in Tennessee Counties*, pp. 3-4.

scientists and system analysts, dentists, lawyers, pharmacists, physicians and surgeons) and management, business, and financial occupations**,** the gender gap has narrowed because predominantly female occupations pay less. Other reasons are an increase in union representation in several of the traditionally female occupations, and the impact of the Equal Pay Act of 1963 and the Civil Rights Act of 1964. Despite these impressive gains, women have a long way to go before they achieve economic equality with men.

It is of great importance to women, to the Council, and to the government to fully appreciate the nature of the wage gap between men and women. There are certain prevailing myths about the wage gap that need to be dispelled. On the one hand, the earnings ratio is sometimes misunderstood as being for men and women "doing the same work." This is not true because if employers do not pay the same wages to men and women who do substantially equal work, involving equal skill, effort, and responsibility, and performed under similar conditions in the same establishment, it would be a violation the Equal Pay Act of 1963, and hence illegal. On the other hand, the wage gap is misunderstood as being largely due to differences between men and women in "preferences, motivations, and expectations," and "experience, education, and skills." This is not true because the earnings gap persists even for women who do not prefer the less demanding "mommy track" positions, who work full-time, and have similar education and experience as men[3]. To fully understand the earnings gap between men and women, we need to examine data on men and women's earnings across a more detailed and disaggregated group of occupations.

A comparison of the distribution of men and women across more than 200 occupations in the U.S.[4] shows that women are especially concentrated in administrative support occupations (such as secretaries and administrative assistants, file clerks, bookkeeper, computer operator, customer service

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[3] According to the IWPR report on Tennessee, the female-male earnings ratio persists at different levels of education. It is 72.8 percent for people with less than 12th grade; 67.2 percent for those with only high school education, 71.8 percent for those with some college; 62.6percent for college graduates; and 55.2 percent for those with more than college education (IWPR, The status of Women in Tennessee, p. 29).

[4] There is no published data for Tennessee that shows employment and earnings by detailed occupations. The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor publishes two sets of data on employment and earnings. One is the median weekly earnings nationwide for more than three hundred detailed occupations by gender but not by state, and the other is "occupational employment statistics" on employment and wages for more than 300 (and even 800) occupations by state but not gender.

representative, postal service clerk, reservation and transport ticket agent), and in service occupations (such as childcare workers, waitresses, hairdressers and cosmetologists, cooks and maids, and housekeeping cleaners). In 2003, 43 percent of all employed women worked in these administrative support and service occupations (compared to 19 percent of men). Men are especially concentrated in management, business, and financial occupations (16 percent of all men), as well as in blue-collar occupations, both skilled and unskilled (36 percent of all employed men). Although women are more concentrated in the broad category of professional jobs (25 percent of women and 17 percent of men), they are more concentrated in a narrow range of occupations. In fact, many jobs in the professional category are either predominantly female or predominantly male. In 2003, women comprised more than 80 percent of workers in five professions: dieticians and nutritionists, preschool and kindergarten teachers, elementary and middle school teachers, librarians, and registered nurses, which tend to be low-paying compared to predominantly male professional occupations like engineering, where men comprise more than 80 percent of workers.

Out of a total of more than 200 occupations for which detailed data is available, Table I shows the 39 where overall earnings are higher than $1000 per week ($52,000 per year). These include engineers (chemical, civil, mechanical, and others), physicians and surgeons, post secondary teachers, lawyers, managers, and computer analysts. Out of these 39 occupations, there are 14 where women are less than 20 percent of the workers. In most engineering occupations, women constitute less than 10 percent of the workforce. The opposite picture emerges when we consider the low-paid occupations. Table II shows the 26 selected occupations (out of the 200) where overall earnings are less $405 per week or $21,060 per year ($15,184 - $21,060). These include tellers, cashiers, maids, and waitresses. In 15 out of these 26 occupations, women comprise about two-thirds or more of the workforce. In 6 of these occupations - tellers, hairdressers, nursing aides, personal aides, childcare workers, and maids – more than 85 percent of the workers are female. Table III shows the occupational distribution of women and men, classified into three income categories: low-income (less than $500 per week), middle-income ($501- less than $1000 per week), and high-income (more than $1000 per week), and Table IV shows the earnings of men and women in occupations that are predominantly female (80 percent female) or predominantly male (20 percent female). The occupations that are predominantly female are lower paid. Thus out of the 12 occupations where more than 80 percent workers are female, none are high income, and most are low-income occupations**.** On the other hand, out of the 23 occupations where

less than 20 percent workers are female, only 4 are low income, and most are high-income occupations. This concentration of women in lower paying occupations lies at the root of their disadvantage. The second issue is that there is still a significant wage gap within each of the 300 detailed occupations: female registered nurses earn less than male registered nurses, and the same is true for each occupational category. The female-male earnings ratio is 0.87 for computer programmers, 0.81 for maids and housekeeping cleaners, and 0.52 for physicians and surgeons. While the wage gap for physicians may be partly explained by male-female differences in fields of specialization, the one between elementary school teachers is more difficult to explain as it involves similar education and no specific specialization.

It is also noteworthy that the concentration of women in a few occupations, known as "occupational segregation," increases rather than decrease as we consider more detailed occupational classifications. Thus, within the physician and surgeon category, women are more concentrated in the relatively lower-paid specialties of pediatrics and family practice rather than the higher-paid specialties of gynecology and surgery. Similarly, within the post-secondary teacher category, women are concentrated in teaching of foreign languages rather than economics, the latter being higher-paid. Or waitresses are more likely to work at less expensive restaurants and waiters at more expensive ones. An IWPR 1995 study found that women managers are unlikely to be top earners in managerial positions: only 1 percent have earnings in top 10 percent, only 6 percent have earnings in top 20 percent, and only 5.2 percent of the highest earning executives in Fortune 500 companies were women in 2002.

There are several reasons for the earnings gap between men and women. One of the explanations, known as the "human capital theory," argues that since women get less labor market experience than men, and anticipate shorter and more discontinuous work lives, they have less to gain from investing in education and training, in "human capital." Since they have less education and training than men, so the argument goes, they earn less than men. Moreover, since they anticipate withdrawing from work eventually, they choose careers that would penalize them less for withdrawal, but these careers are low paying. As an example, women are more likely to be teachers than medical doctors. According to the "overcrowding model," women's exclusion from some jobs results in their excess supply in other jobs, in "female occupations," which depresses earnings in the female occupations and increases it in the "male occupations." Another argument is that "discrimination by employers, employees, or customers" reduces women's earnings relative to men's.

These models can be tested by using statistical regression techniques to estimate the percentage of the wage gap that is due to differences in the characteristics of workers, such as education, occupation, experience, and number of children. The percentage that is unexplained is considered to be due to discrimination. Most studies have generally concluded that about 25-40 percent of the wage gap cannot be explained by those differences between men and women, and so it is due to discrimination. According to Francine Blau of Cornell University, even if we control for male-female differences in educational attainment, labor force experience, race, and occupational category, 64.4 percent of the wage gap is unexplained. Research by the U.S. General Accounting Office in 2003 shows that from 1983-2000, 45 percent of the wage gap could not be explained by the differences in human capital, industry and occupation, unionization, and work hours. There are basically two opinions among economists on controls used in regressions. Some believe that we should control not only for education and work experience differences, but also occupational and industry differences so that we compare men and women in same occupations, same industry, with same education and work experience. Others believe that we should control for education and experience, but not for occupations and industry because these are themselves affected by discrimination. The choice of an occupation or an industry is not entirely due to women's personal preferences, but women face greater barriers than men in obtaining human capital or in entering certain occupations and industries. Moreover, "subtle barriers" and "socialization" steers women away from certain occupations.

Socialization is the process by which the influence of family, friends, teachers, the media, and society in general shapes women's and men's attitudes and behavior, affect their self-esteem, and later labor market success. It is argued that different treatment of boys and girls in the classroom, different expectations of speech patterns, portrayal of women in media, working of the mentor-protégé network - all reinforce stereotypical views of appropriate gender roles. For example, studies have shown that boys receive a disproportionate share of the teacher's attention and different treatment in terms of building independence and confidence. Also, women, conditioned into not interrupting conversations, do not participate in the same way in discussions and meetings, and develop speech patterns that do not reflect leadership qualities. Research by AAUW has shown that while the same number of boys and girls are interested in science and math in elementary school, more girls than boys drift away from these subjects beginning in sixth grade. The result has been that far fewer women become scientists and engineers, although the situation is changing.

RECOMMENDATIONS

Whether the wage gap and the lower status of women is due to discrimination by the employers or due to socialization, or both, there is a pressing need to address it in a multi-faceted way, with involvement of all the stake-holders. This requires action by the women themselves, employers in the private sector, non-profits, women's groups, and the government. Efforts need to be directed in three directions: to prepare women better for receiving higher earnings – through education, training, and mentoring; for making the work place more family-friendly; and for more government involvement in enforcing existing legislation on equal opportunity and formulating new where needed. The socialization aspect points for a special need for extensive mentoring of girls at the school age and for awareness raising programs, both of which can best be accomplished through collaboration with state agencies, particularly the department of education. Similarly, training in non-traditional fields which are the ones with a lower wage gap and high earnings need to be encouraged. The family-friendly workplace requires better, adequate, and affordable childcare facilities and better policies for preventing and handling sexual harassment. Government efforts should include, among others, the monitoring of violations of Equal Pay Act and Title VII of the Civil Rights Act, as well as stronger poverty reduction programs.

Table I: Distribution of Male & Female Workers among the 39 Highest Paid Occupations								
	(---------in thousand-----)							
Occupation	Number of all workers	Number of male workers	Number of female workers	Ratio of female to male workers	Median all weekly earnings($)	Median male weekly earnings($)	Median female weekly earnings($)	Ratio of female to male ear.
Engineering managers	99	94	6	**0.06**	$1,807	$1,783	*	*
Chief executives	1050	802	248	0.24	1663	1875	$1,310	**0.70**
Physicians and Surgeons	**555**	**382**	**173**	**0.31**	**1660**	**1874**	**978**	**0.52**
Pharmacists	162	90	72	0.44	1578	1684	1432	**0.85**
Lawyers	621	412	208	0.33	1561	1710	1255	**0.73**
Computer & inform. sys. Managers	325	228	96	0.3	1439	1547	1228	**0.79**
Computer software engineers	757	572	184	0.24	1350	1429	1149	**0.80**
Aerospace engineers	105	94	10	**0.1**	1347	1369	*	*
Judges, magistrates, and other legal work	58	25	33	0.57	1333	*	*	*
Computer hardware engineers	86	73	13	**0.15**	1328	1487	*	*
Electrical and electronics engi	311	287	24	**0.08**	1277	1336	*	*
Chemical engineers	65	55	10	**0.15**	1221	1242	*	*
Marketing and sales managers	770	472	298	0.39	1213	1441	898	**0.62**
Mechanical engineers	292	276	16	**0.05**	1187	1201	*	*
Industrial engineers	178	146	32	**0.18**	1152	1195	*	*
Architects, except naval	142	105	38	0.27	1141	1242	*	*
Civil engineers	264	232	32	**0.12**	1135	1159	*	*
General and operations managers	727	552	**175**	0.24	1129	1166	872	**0.75**
Computer programers	516	371	145	0.28	1118	1151	1006	**0.87**
Industrial production manager	269	220	49	**0.18**	1107	1172	*	*
Database administrators	76	53	22	0.29	1105	1121	*	*
Purchasing managers	163	104	59	0.36	1092	1153	946	**0.66**
Operations research analysts	84	43	41	0.49	1083	*	*	*
Personal financial advisors	229	167	61	0.27	1062	1170	773	**0.66**
Human resources managers	261	90	171	0.66	1051	1259	958	**0.76**
Chemical and materials scientists	133	91	42	0.32	1048	1146	*	*
Network & computer systems administra	178	145	33	**0.19**	1038	1084	*	*
Postsecondary Teachers	**813**	**476**	**337**	**0.41**	**1034**	**1162**	**886**	**0.76**
Producers and directors, entertainment	98	63	35	0.36	1030	1211	*	*
Computer scientists and sys. Analysts	604	418	186	0.31	1027	1092	902	**0.83**
Construction managers	425	402	23	**0.05**	1027	1036	*	*
Network sys. & data communication anal	233	189	44	**0.19**	1027	1097	*	*
Medical scientists	83	38	45	0.54	1025	*	*	*
Education administrators	651	246	405	0.62	1019	1172	905	**0.77**
Management analysts	317	170	146	0.46	1017	1215	922	**0.76**
Managers of police and detectives	134	107	27	**0.2**	1015	1055	*	*
Psychologists	75	28	47	0.63	1012	*	*	*
Environmental scientists	75	55	20	0.27	1008	1144	*	*
* Data not shown where base is less than 50,000								

Table II: Distribution of Male & Female Workers among the 25 Lowest Paid Occupations

Occupation	(----------in thousands-----) Number of all workers	Number of male workers	Number of female workers	Ratio of female to male workers	Median all weekly earnings($)	Median male weekly earnings($)	Median female weekly earnings($)	Ratio of female to male ear.
Tellers	**301**	**35**	**265**	**0.88**	**405**	*	**401**	*
Hairdressers and cosmetologists	**291**	**24**	**267**	**0.92**	**398**	*	**394**	*
Nursing, psychiatric, & home health ai	**1261**	**148**	**1113**	**0.88**	**388**	**420**	**383**	**0.91**
Cleaners, vehicles & equipment	258	230	28	**0.11**	384	387	*	*
Telemarketers	93	32	61	0.66	380	*	*	*
Parking lot attendants	52	44	8	**0.15**	378		*	*
Tailors, dressmakers, ad sewers	50	17	33	0.66	376	*	*	*
Grounds maintenance workers	848	803	46	**0.05**	372	371	*	*
Packaging and filling machine operato	299	131	168	**0.56**	368	410	341	**0.83**
Food servers, non-restaurant	94	34	60	0.64	363	*	333	*
Laundry and dry-cleaning workers	136	62	74	**0.54**	360	460	323	**0.70**
Persoanl and home care aides	**360**	**52**	**308**	**0.86**	**358**	**434**	**350**	**0.81**
Graders and sorters, agricultural produ	61	15	46	0.75	355	*	*	*
Packers and packagers, hand	349	143	206	**0.59**	349	373	333	**0.89**
Waiters and waitresses	799	261	538	0.67	348	399	327	**0.82**
Cooks	1167	723	443	**0.38**	341	356	319	**0.90**
Dining room and cafetaria attendants	152	91	61	**0.4**	340	326	356	**1.09**
Childcare workers	**413**	**26**	**387**	**0.94**	**334**	*	**334**	*
Maids and housekeeping cleaners	**818**	**95**	**723**	**0.88**	**331**	**402**	**324**	**0.81**
Sewing machine operators	242	56	186	0.77	327	381	319	**0.84**
Cashiers	1355	339	1016	0.75	322	380	313	**0.82**
Food preparation workers	278	120	158	**0.57**	321	319	323	**1.01**
Service station attendants	78	76	2	**0.03**	319	319	*	*
Dishwashers	141	111	30	**0.21**	306	311	*	*
Pressers, textile, garment & other mate	67	24	42	0.63	293		*	*
Counter attendants, cafetaria, coffee sl	91	35	56	0.62	292	*	*	*

* Data not shown where base is less than 50,000

Table III: Occupational Distribution of Male & Female Workers by Income Levels								
	(--------in thousands-----)							
Occupation	Number of all workers	Number of male workers	Number of female workers	Ratio of female to male workers	Median all weekly earnings($)	Median male weekly earnings($)	Median female weekly earnings($)	Ratio of female to male ear.
High-Income-more than $1000 per week								
Engineering managers	99	94	6	0.06	1807	1783	*	*
Chief executives	1050	802	248	0.24	1663	1875	1310	0.70
Physicians and Surgeons	555	382	173	0.31	1660	1874	978	0.52
Pharmacists	162	90	72	**0.44**	1578	1684	1432	0.85
Lawyers	621	412	208	0.33	1561	1710	1255	0.73
Computer & inform. sys. Managers	325	228	96	0.30	1439	1547	1228	0.79
Chemical Engineers	65	55	10	0.15	1221	1242	*	*
Marketing and sales managers	770	472	298	**0.39**	1213	1441	898	0.62
Mechanical and civil engineers	556	508	48	0.09	1161	1180	*	*
General and operations managers	727	552	175	0.24	1129	1166	872	0.75
Computer programers	516	371	145	0.28	1118	1151	1006	0.87
Purchasing managers	163	104	59	0.36	1092	1153	946	0.66
Personal financial advisors	229	167	61	0.27	1062	1170	773	0.66
Human resources managers	261	90	171	**0.66**	1051	1259	958	0.76
Postsecondary Teachers	813	476	337	0.41	1034	1162	886	0.76
Computer scientists and sys. Analysts	604	418	186	0.31	1027	1092	902	0.83
Education administrators	651	246	405	**0.62**	1019	1172	905	0.77
Middle-Income-$501 to less than $1000 per week								
Financial managers	961	427	535	0.56	986	1397	839	0.60
Registered nurses	**1800**	**148**	**1651**	**0.92**	**904**	**1031**	**895**	**0.87**
Editors	110	56	54	0.49	856	946	759	0.80
Accountants and auditors	1385	543	842	0.61	851	1016	757	0.75
Police and sheriff's patrol officers	**654**	**571**	**83**	**0.13**	**844**	**845**	**841**	**1.00**
Librarians	159	23	136	0.86	834	*	823	*
Elementary and middle school teach	**2206**	**435**	**1772**	**0.80**	**806**	**917**	**776**	**0.85**
Electricians	668	655	14	0.02	719	718	*	*
Social workers	620	148	472	0.76	698	720	689	0.96
Inspectors, testers, sorters, samplers, &	638	398	240	0.38	585	663	474	0.71
Carpenters	1170	1149	21	0.02	576	576	*	*
Secretaries and administrative assistant	2657	87	2570	0.97	552	598	550	0.92
Preschool and kindergarten teachers	484	11	473	0.98	521	*	515	*
Office clerks, general	667	109	559	0.84	503	523	499	0.95
Low-Income-Less than $500 per week								
Butchers and meat processing workers	260	209	51	**0.20**	454	488	369	0.76
Tellers	301	35	265	0.88	405	*	401	*
Hairdressers and cosmetologists	291	24	267	0.92	398	*	394	*
Nursing, psychiatric, & home health aide	1261	148	1113	0.88	388	420	383	0.91
Food servers, non-restaurant	94	34	60	0.64	363	*	333	*
Laundry and dry-cleaning workers	136	62	74	**0.54**	360	460	323	0.70
Persoanl and home care aides	360	52	308	0.86	358	434	350	0.81
Waiters and waitresses	**799**	**261**	**538**	**0.67**	**348**	**399**	**327**	**0.82**
Cooks	1167	723	443	0.38	341	356	319	0.90
Dining room and cafetaria attendants	152	91	61	**0.40**	340	326	356	1.09
Childcare workers	413	26	387	0.94	334	*	334	*
Maids and housekeeping cleaners	818	95	723	0.88	331	402	324	0.81
Sewing machine operators	242	56	186	0.77	327	381	319	0.84
Cashiers	1355	339	1016	0.75	322	380	313	0.82
* Data not shown where base is less than 50,000								

Table IV: Sex Segregation by Occupation (numbers in thousands)

Occupation	Number of all workers	Ratio of female to male workers	Median weekly earnings-all	Median male weekly earnings	**Median female weekly earnings**	Ratio of female to male ear.
More than 80 percent female						
Preschool and kindergarten teachers	484	98	**521**	*	**515**	*
Secretaries and administrative assistants	2657	97	**552**	598	**550**	0.92
Childcare workers	413	94	334	*	**334**	*
Hairdressers and cosmetologists	291	92	398	*	**394**	*
Registered nurses	1800	92	**904**	1031	**895**	0.87
Switchboard operators, inc. answering machine	55	91	450	*	**459**	*
Maids and housekeeping cleaners	818	88	331	402	**324**	0.81
Nursing, psychiatric, & home health aides	1261	88	388	420	**383**	0.91
Tellers	301	88	405	*	**401**	*
Persoanl and home care aides	360	86	358	434	**350**	0.81
Librarians	159	86	**834**	*	**823**	*
Office clerks, general	667	84	**503**	523	**499**	0.95
Less than 20 percent female						
Network sys. & data communication analysts	233	19	1027	1097	*	*
Network & computer systems administrators	178	19	1038	1084	*	*
Industrial production managers	269	18	1107	1172	*	*
Industrial engineers	178	18	1152	1195	*	*
Chemical engineers	65	15	1221	1242	*	*
Parking lot attendants	52	15	**378**	*	*	*
Computer hardware engineers	86	15	1328	1487	*	*
Chemical Engineers	65	15	1221	1242	*	*
Laborers & material movers, hand	1342	15	**443**	457	**402**	0.88
Police and sheriff's patrol officers	654	13	844	845	**841**	1
Civil engineers	264	12	1135	1159	*	*
Cleaners, vehicles & equipment	258	11	**384**	387	*	*
Aerospace engineers	105	10	1347	1369	*	*
Electrical and electronics engineers	311	8	1277	1336	*	*
Engineering managers	99	6	1807	1783	*	*
Mechanical engineers	292	5	1187	1201	*	*
Grounds maintenance workers	848	5	**372**	371	*	*
Construction managers	425	5	1027	1036	*	*
Machinists	408	4	670	679	*	*
Logging workers	61	3	465	470	*	*
Service station attendants	78	3	319	319	*	*
Electricians	668	2	719	718	*	*
Carpenters	1170	2	576	576	*	*

* Data not shown where base is less than 50,000